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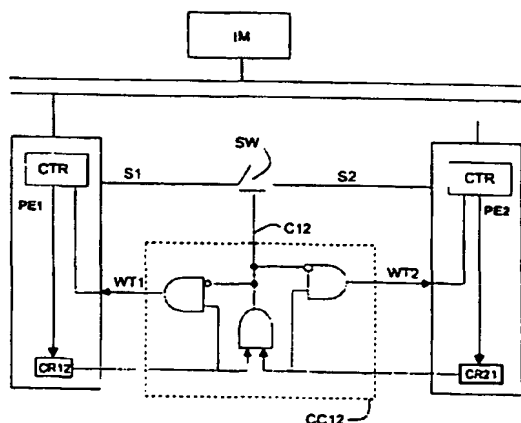
(57) Abstract: A processor system is described comprising at least a first and a second processor element (PEI, PE2). The first processor element (PEI) has a cluster request indicator (CR12) related to the second processor element and the second processor element (PE2) has a cluster request indicator (CR21) related to the first processor element. The processor elements have an instruction set enabling dynamic control of the indicators. The indicators (CR12, CR21) have a value range comprising at least a first value (positive indicator) indicating that the processor element requests to form a cluster with the related processor element, and a second value (negative indicator) indicating that the processor element does not request to form a cluster with the related processor element. The system further comprises a cluster control facility (CC12) which detects the value of the cluster request indicator and organizes the processor elements in clusters in accordance with the detected values. Two processor elements belong to the same cluster if they have positive indicators related to each other, or if there is a sequence of processor elements comprising those two processor elements wherein each pair of subsequent processor elements has positive indicators related to each other.

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AMENDED CLAIMS

[received by the International Bureau on 06 July 2005 (06.07.05);
original claims 1-7 replaced by new claims 1-3 (2 pages)]

1.   A processor system comprising at least a first and a second processor element
(PE1, PE2), the first processor element (PE1) having a cluster request indicator (CR12)
related to the second processor element and the second processor element (PE2) having a
cluster request indicator (CR21) related to the first processor element, the processor elements
having an instruction set enabling dynamic control of the indicators, the indicators (CR12,
CR21) having a value range comprising at least a first value (positive indicator) indicating
that the processor element requests to form a cluster with the related processor element, and
a second value (negative indicator) indicating that the processor element does not request to
form a cluster with the related processor element, the system further comprising a cluster
control facility (CCE1, CCE2, ...) which detects the value of the cluster request indicators
and organizes the procesor elements in clusters, in accordance with the detected values, two
processor elements belonging to the same cluster if they have positive indicators related to
each other, or if there is a sequence of processor elements comprising those two processor
elements, wherein each pair of subsequent processor elements has positive indicators related
to each other, the cluster control facility comprising a chain of cluster control elements
(CCE1, CCE2, ..) which are coupled to each other via a first wait signal line and a second
wait signal line (WSL, WSR), the wait signal lines carrying a signal indicative of whether
processor elements coupled to that line should suspend their activities, the cluster control
elements being able to modify these signals.

2.   A processor system according to claim 1, wherein processor elements
organized in a cluster operate under a common thread of control.

3.   A method for operating a system comprising at least a first and a second
processor element, the method comprising programmably controlling a cluster request
indicator of the first processor element related to the second processor element and
programmably controlling a cluster request indicator of the second processor element related
to the first processor element,

AMENDED SHEET (ARTICLE 19)

the indicator having a value range comprising at least a first value (positive indicator) indicating that the processor element requests to form a cluster with the related processor element, and a second value (negative indicator) indicating that the processor element does not request to form a cluster with the related processor element,

detecting the value of the cluster request indicators and organizing the processor elements in clusters in accordance with the detected values, two processor elements belonging to the same cluster if they have positive indicators related to each other, or if there is a sequence of processor elements comprising those two processor elements, wherein each pair of subsequent processor elements has positive indicators related to each other,

the step of organizing the processor elements in clusters comprising the following substeps,

receiving an input value for a first wait signal and providing an output value for said signal indicating whether the processor receiving said signal is forced to suspend its activities, the output value depending on the input value and a first and a second cluster request indicator,

receiving an output value for a second wait signal and providing an output value for said signal indicating whether the processor receiving said signal is forced to suspend its activities, the output value depending on the input value and the first and the second cluster request indicator.

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